

Abstracted/indexed in: Chemical Abstracts, ERDA Abstracts, ISI Current Contents, Inspec Abstracts, Nuclear Engineering Abstracts, Physics Abstracts, Physikalische Berichte/Physics Briefs

### Molecular Clusters

Preface	vii
<b>Hydrogen-Bound Clusters</b>	
Double resonance spectroscopy of phenol( $\text{H}_2\text{O}$ ) <sub>1-12</sub> : evidence for ice-like structures in aromate-water clusters?	
W. Roth, M. Schmitt, Ch. Jacoby, D. Spangenberg, Ch. Janzen and K. Kleinermanns	1
Vibrational spectroscopy of single methanol molecules attached to liquid water clusters	
F. Huisken, S. Mohammad-Pooran and O. Werhahn	11
Investigations of OH-N- and NH-O-type hydrogen-bonded clusters by UV laser spectroscopy	
C. Jacoby, P. Hering, M. Schmitt, W. Roth and K. Kleinermanns	23
Highly resolved UV spectroscopy of clusters: isotope substitution studies of hydrogen-bonded phenol · water	
R.M. Helm and H.J. Neusser	33
Hydrogen bonding in (substituted benzene) · (water) <sub>n</sub> clusters with $n \leq 4$	
H.-D. Barth, K. Buchhold, S. Djafari, B. Reimann, U. Lommatzsch and B. Brutschy	49
Electronic spectroscopy of jet-cooled anthracene/( $\text{H}_2\text{O}$ ) <sub>n</sub> clusters ( $n = 1-16$ ): comparisons of inhomogeneous structure	
P.M. Palmer and M.R. Topp	65
Resonant ion-dip infrared spectroscopy of benzene-(water) <sub>n</sub> -(methanol) <sub>m</sub> clusters with $n + m = 4, 5$	
F.C. Hagemeister, C.J. Gruenloh and T.S. Zwier	83
Equatorial piperidine and the piperidine-water complex. Rotational spectra and molecular structures	
U. Spoerel and W. Stahl	97
A contribution to the rotational spectrum, structure, and dynamics of the benzonitrile-water complex in the $S_0$ electronic state	
V. Storm, H. Dreizler and D. Consalvo	109
<b>Van der Waals and Weakly Bound Complexes</b>	
On the use of evaporation dynamics to characterize phase transitions in van der Waals clusters: investigations in aniline-(argon) <sub>n</sub> up to $n = 15$	
P. Parneix, F.G. Amar and P. Bréchignac	121
Laser-induced fluorescence spectroscopy of van der Waals complexes of tetracene-Ar <sub>N</sub> ( $N \leq 5$ ) and pentacene-Ar within ultracold liquid He droplets	
M. Hartmann, A. Lindinger, J.P. Toennies and A.F. Vilesov	139
Existence of two internal energy distributions in jet-formed van der Waals heteroclusters: example of the anthracene-argon <sub>n</sub> system	
D. Uridat, V. Brenner, I. Dimicoli, J. Le Calvé, P. Millié, M. Mons and F. Piuze	151

(continued on inside back page)



## Contents

(continued from page 4 of cover)

The B $\leftarrow$ X spectrum of ArCl <sub>2</sub> : linear and perpendicular isomers K.C. Janda, D. Djahandideh, O. Roncero and N. Halberstadt	177
Effects of complex formation on reactions of oxygen with HCl and Ar-HCl M.W. Lufaso and A.B. McCoy	187
A contribution to the structure determination of Ar-thiophene: the electric dipole moment U. Spoerel and D. Consalvo	199
Electronic spectroscopy and excited state dynamics of the Al-N <sub>2</sub> complex X. Yang, I. Gerasimov and P.J. Dagdigian	207
Adducts of aromatic molecules with rare gases: rotational spectrum of pyrazole-argon W. Caminati, P.G. Favero and B. Velino	223
Rotational spectrum and dynamics of tetrahydrofuran-argon S. Melandri, J.C. López, P.G. Favero, W. Caminati and J.L. Alonso	229
Isomeric structures, large amplitude intermolecular motions and electronic relaxation of the propynal-Ar complex P. DeRose, P.-Y. Cheng, B. Xue, S.-S. Ju and H.-L. Dai	235
Large-amplitude motion in highly quantum clusters: high-resolution infrared absorption studies of jet-cooled H <sub>2</sub> -HCl and H <sub>2</sub> -DCI D.T. Anderson, M. Schuder and D.J. Nesbitt	253
<b>Cluster Collisions</b>	
Penning ionization of C <sub>60</sub> and C <sub>70</sub> J.M. Weber, K. Hansen, M.-W. Ruf and H. Hotop	271
Angular and velocity distributions of small cluster fragments in neutral (NH <sub>3</sub> ) <sub>n</sub> scattering off LiF(100) C. Menzel, R. Baumfalk and H. Zacharias	287
Capture dynamics in collisions between fullerene ions and rare gas atoms E.E.B. Campbell, R. Ehlich, G. Heusler, O. Knospe and H. Sprang	299
<b>Dynamics and Reactivity</b>	
Charge stripping effects from highly charged iodine ions formed from Coulomb explosion of CH <sub>3</sub> I clusters L. Poth, Q. Zhong, J.V. Ford, S.M. Hurley and A.W. Castleman Jr.	309
Ultrafast dynamics of transition metal carbonyls. II. Picosecond evaporation after photodissociation of Cr(CO) <sub>6</sub> · (CH <sub>3</sub> OH) <sub>n</sub> heteroclusters at 280 nm M. Gutmann, J.M. Janello and M.S. Dickebohm	317
Reactivity of vinyl chloride ionic clusters S. Martrenchard, C. Dedonder-Lardeux, I. Dimicoli, G. Grégoire, C. Jouvet, M. Mons and D. Solgadi	331
Mode dependence of the state-to-state vibrational dynamics of HCN-HF L. Oudejans and R.E. Miller	345
Vibrational and unimolecular dissociation of mixed solvent cluster ions: Na <sup>+</sup> ((CH <sub>3</sub> ) <sub>2</sub> CO) <sub>n</sub> (CH <sub>3</sub> OH) <sub>m</sub> C.J. Weinheimer and J.M. Lisy	357

(continued on preceeding page)

## Contents

(continued from following page)

Photofragmentation dynamics of the $(\text{N}_2\text{O})_2^+$ and $(\text{N}_2\text{O})_3^+$ clusters: fragment $\text{N}_2\text{O}^+$ $A \leftarrow X$ spectra S.A. Nizkorodov and E.J. Bieske	369
Stability and reactivity of hydrated magnesium cations C. Berg, M. Beyer, U. Achatz, S. Joos, G. Niedner-Schatteburg and V.E. Bondybey	379
<b>Cation Clusters</b>	
Infrared photodissociation spectra of isomeric $\text{SiOH}^+-\text{Ar}_n$ ( $n = 1-10$ ) complexes R.V. Olkhov, S.A. Nizkorodov and O. Dopfer	393
High-resolution electron ionization study of $\text{CO}$ , $(\text{CO})_2$ and $(\text{CO})_3$ : appearance energies and bond dissociation energies D. Muigg, G. Denifl, A. Stamatovic, O. Echt and T.D. Märk	409
Structure and dynamics of the phenol-water-argon cation radical D.M. Chapman, F.J. Hompf, K. Müller-Dethlefs, E. Waterstradt, P. Hobza and V. Špirko	417
Photodissociation spectroscopy of (benzene-toluene) $^+$ . Charge delocalization in the hetero-dimer ion K. Ohashi, Y. Nakane, Y. Inokuchi, Y. Nakai and N. Nishi	429
ZEKE electron spectroscopy of azulene and azulene-argon D. Tanaka, S. Sato and K. Kimura	437
Photodissociation of $\text{Mg}^+-(\text{CH}_3\text{OH})_N$ complexes: evidence for the onset of solvation M.R. France, S.H. Pullins and M.A. Duncan	447
<b>Anion Clusters</b>	
Threshold electron attachment and electron impact ionization involving oxygen dimers J. Kreil, M.-W. Ruf, H. Hotop, I. Ettischer and U. Buck	459
Neutral and negatively-charged formamide, N-methylformamide and dimethylformamide clusters C. Desfrancois, V. Périquet, S. Carles, J.P. Schermann and L. Adamowicz	475
Mass-selected "matrix isolation" infrared spectroscopy of the $\text{I}^-(\text{H}_2\text{O})_2$ complex: making and breaking the inter-water hydrogen-bond P. Ayotte, G.H. Weddle, J. Kim and M.A. Johnson	485
Photoelectron-photofragment coincidence studies of the dissociative photodetachment of $\text{O}_4^-$ K.A. Hanold and R.E. Continetti	493
Anion spectroscopy of uracil, thymine and the amino-oxo and amino-hydroxy tautomers of cytosine and their water clusters J. Schiedt, R. Weinkauff, D.M. Neumark and E.W. Schlag	511
<b>Theory</b>	
Modeling structure and dynamics of solvated molecular ions: Photodissociation and recombination in $\text{I}_2^-(\text{CO}_2)_n$ J. Faeder, N. Delaney, P.E. Maslen and R. Parson	525
Calculation of structures and vibrational spectra of acetonitrile clusters J.G. Siebers, U. Buck and T.A. Beu	549
Improved intermolecular water potential from global geometry optimization of small water clusters using local MP2 B. Hartke, M. Schütz and H.-J. Werner	561

(continued on preceding page)

## Contents

*(continued from following page)*

Many-body exchange effects in clusters of rare gases with a chromophore: He <sub>2</sub> CO <sub>2</sub> J. Jakowski, G. Chałasiński, M.M. Szczeniak and S.M. Cybulski	573
Melting behavior of the (H <sub>2</sub> O) <sub>6</sub> and (H <sub>2</sub> O) <sub>8</sub> clusters J.M. Pedulla and K.D. Jordan	593
Author index	603
Subject index	609
Instructions to authors	621



This journal is part of **ContentsDirect**, the *free* alerting service which sends tables of contents by e-mail for Elsevier Science books and journals. The quickest way to register for **ContentsDirect** is via the World Wide Web at: [www.elsevier.nl/locate/ContentsDirect](http://www.elsevier.nl/locate/ContentsDirect)

If you don't have access to the WWW you can register for this service by sending an e-mail message to [cdsubs@elsevier.co.uk](mailto:cdsubs@elsevier.co.uk) specifying the title of the publication you wish to register for.

The tables of contents are also available on the Elsevier Science website at: [www.elsevier.nl](http://www.elsevier.nl) or [www.elsevier.com](http://www.elsevier.com) or [www.elsevier.co.jp](http://www.elsevier.co.jp)